Docket No.: 1640.1019

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Yasuyuki MIURA et al.

Serial No. 10/642,647 Group Art Unit: 2624

Confirmation No. 3742

Filed: August 19, 2003 Examiner: Claire X. Wang

For: REAL-TIME CONTENTS EDITING METHOD, SYSTEM, AND PROGRAM

APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 41.37

Mail Stop - Appeal Brief - Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

The following comprises the Appellants' Brief on Appeal from the final rejection, dated July 27, 2007, of claims 1, 2, 3, and 6-10. This Appeal Brief is accompanied by the required appeal fee set forth in 37 C.F.R. § 41.20(b)(2). Appellants' Notice of Appeal was filed on December 21, 2007. Therefore, the present Appeal Brief is timely filed.

I. REAL PARTY IN INTEREST

The above-captioned application is assigned in its entirety to Communications Research Laboratory, having a corporate situs of Independent Administrative Institution 4-2-1, Nukui-Kitamachi, Koganei-shi, Tokyo 184-8795 Japan.

II. RELATED APPEALS AND INTERFERENCES

Appellants state that, upon information and belief, Appellants are aware of no co-pending appeal or interference that will directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1, 2, 3, and 6-10 are pending in the application. Claims 4 and 5 were canceled. Claims 1, 2, 3, and 6-10 were rejected. The rejection of claims 1, 2, 3, and 6-10 is being appealed.

IV. STATUS OF AMENDMENTS

One response was filed subsequent to the final rejection on July 27, 2007. No claims were amended.

The Examiner responded to the response in an Advisory Action mailed November 30, 2007.

V. SUMMARY OF CLAIMED SUBJECT MATTER

1. Independent claim 1:

Independent claim 1 is directed to a real-time contents editing method for editing a large number of images, as described at page 6, lines 7-11 of the specification, and shown in Fig. 1. The images may include live images or voices which are present in a dispersed fashion on the Internet, as described at page 6, lines 11-14 and 23-27, continuing at page 7, line 1 of the specification. The edited images or voices may be distributed to a plurality of users, as described at page 8, lines 2-6 of the specification.

A plurality of video cameras may be provided, as described at page 7, lines 3 and 4 of the specification. Each of the video cameras may serve as an input device.

A plurality of distribution modules may be provided, as described at page 6, line 15 of the specification. Each of the distribution modules may be adapted to code an input image taken by a corresponding video camera, as described at page 7, lines 4, 5, and 6 of the specification, and shown in Fig. 3.

Each of the distribution modules may use a coding standard which enables coding while selecting one of a plurality of coding algorithms and distributing the coded input image, as described at page 6, lines 18-22 and page 7, lines 6, 7, and 8 of the specification.

A plurality of receiving modules may be provided, as described at page 6, line 16 of the specification.

Each of the receiving modules may be adapted to receive and display the image or voice distributed from the distribution modules, as described at page 7, lines 8, 9, and 10 of the specification. At least one editing module requests the distribution modules to distribute the image or voice to the receiving modules, as described at page 7, line 10 of the specification.

The performance level of a machine to be used may be determined through measurement, in the system, of a time required for coding of a video object plane (VOP), as described at page 13, lines 1-7 and 13-17 of the specification, and shown in Fig. 3.

Each distribution module may change, in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used, to thereby select a coding algorithm which enables highly efficient compression, as described at page 7, lines 10-14 of the specification.

2. Independent claim 3:

Independent claim 3 is directed to a real-time contents editing system for editing a large number of images, as described at page 6, lines 7-11 of the specification, and shown in Fig. 1. The images may include live images or voices which are present in a dispersed fashion on the Internet, as described at page 6, lines 11-14 and 23-27, continuing at page 7, line 1 of the specification. The edited images or voices may be distributed to a plurality of users, as described at page 8, lines 2-6 of the specification.

The system may also include a plurality of video cameras, as described at page 7, lines 3 and 4 of the specification. Each of the video cameras may serve as an input device.

The system may also include a plurality of distribution modules as described at page 6, line 15 of the specification. Each of the distribution modules may be adapted to code an input

image taken by a corresponding video camera, as described at page 7, lines 4, 5, and 6 of the specification, and shown in Fig. 3. Each of the distribution modules may use a coding standard which enables coding while selecting one of a plurality of coding algorithms and to distribute the coded input image, as described at page 6, lines 18-22 and page 7, lines 6, 7, and 8 of the specification.

The system may also include a plurality of receiving modules as described at page 6, line 16 of the specification. Each of the receiving modules may be adapted to receive and display the image or voice distributed from the distribution modules, as described at page 7, lines 8, 9, and 10 of the specification. At least one editing module requests the distribution modules to distribute the image or voice to the receiving modules, as described at page 7, line 10 of the specification.

The performance level of a machine to be used may be determined through measurement, in the system, of a time required for coding of a video object plane (VOP), as described at page 13, lines 1-7 and 13-17 of the specification, and shown in Fig. 3.

Each distribution module may change, in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used, to thereby select a coding algorithm which enables highly efficient compression, as described at page 7, lines 10-14 of the specification.

3. Independent claim 9:

Independent claim 9 is directed to a computer-readable medium storing a real-time contents editing program for editing a large number of images, as described at page 6, lines 7-11 of the specification, and shown in Fig. 1. The images may include live images or voices which are present in a dispersed fashion on the Internet, as described at page 6, lines 11-14 and 23-27, continuing at page 7, line 1 of the specification. The edited images or voices may be distributed to a plurality of users, as described at page 8, lines 2-6 of the specification.

The program may be adapted to a system comprising a plurality of video cameras, as described at page 7, lines 3 and 4 of the specification. Each of the video cameras may serve as an input device.

A plurality of distribution modules may be provided, as described at page 6, line 15 of the specification. Each of the distribution modules may be adapted to code an input image taken by a corresponding video camera, as described at page 7, lines 4, 5, and 6 of the specification, and shown in Fig. 3. Each of the distribution modules may use a coding standard which enables

coding while selecting one of a plurality of coding algorithms and distributing the coded input image, as described at page 6, lines 18-22 and page 7, lines 6, 7, and 8 of the specification.

A plurality of receiving modules may be provided, as described at page 6, line 16 of the specification. Each of the receiving modules may be adapted to receive and display the image or voice distributed from the distribution modules, as described at page 7, lines 8, 9, and 10 of the specification. At least one editing module requests the distribution modules to distribute the image or voice to the receiving modules, as described at page 7, line 10 of the specification.

The program causes a computer to determine the performance level of a machine to be used through measurement, in the system, of a time required for coding of a video object plane (VOP), as described at page 13, lines 1-7 and 13-17 of the specification, and shown in Fig. 3.

The program also causes each distribution module to change, in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used, to thereby select a coding algorithm which enables highly efficient compression, as described at page 7, lines 10-14 of the specification.

4. Independent claim 10:

Independent claim 10 is directed to an apparatus, as described at page 6, lines 7-14 and 23-27, continuing at page 7, line 1 of the specification, and shown in Fig. 1. The apparatus includes a plurality of video units as input devices, as described at page 7, lines 3 and 4 of the specification. Each of the video units collects data containing at least one of voice or image data.

The apparatus also includes a plurality of distribution units, as described at page 6, line 15 of the specification. Each of the distribution units may be adapted to code input data captured by a respective video unit, as described at page 7, lines 4, 5, and 6 of the specification, and shown in Fig. 3. Each of the distribution units may use one of a plurality of coding algorithms to code the data, as described at page 6, lines 18-22 and page 7, lines 6, 7, and 8 of the specification.

The apparatus also includes a plurality of receiving units, as described at page 6, line 16 of the specification. Each of the receiving units may be adapted to operably present the coded data received from a respective distribution unit , as described at page 7, lines 8, 9, and 10 of the specification.

The apparatus also includes an editing unit which requests the distribution units to

distribute coded data to the respective receiving, as described at page 7, line 10 of the specification. The editing unit also determines the performance level of a distribution unit by measuring the time required for coding of a video object plane, as described at page 13, lines 1-7 and 13-17 of the specification, and shown in Fig. 3. Finally, the editing unit selects a coding algorithm in accordance with the performance level, thereby facilitating efficient data compression, as described at page 7, lines 10-14 of the specification.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The following grounds of rejection are to be reviewed in this Appeal:

The rejection of claims 1, 2, 3, and 6-10 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,542,549 to Tan et al. (hereinafter "Tan") in view of U.S. Patent No. 6,744,927 to Kato (hereinafter "Kato").

VII. ARGUMENTS

1. Claims 1, 2, 3, and 6-10 are patentable over Tan in view of Kato.

A. Independent claim 1:

First, independent claim 1 is patentable over Tan in view of Kato because neither Tan nor Kato, nor their combination, disclose all of the features of independent claim 1.

Neither Tan nor Kato, for example, disclose "determining the performance level of a machine to be used through measurement, in the system, of a time required for coding of a video object plane (VOP)," as recited in the third clause of independent claim 1. Tan, rather, seeks to regulate the complexity requirements of a *bitstream* in terms of computational and memory requirements, not determine "the performance level of the machine," as recited in independent claim 1. In particular, as described at column 3, lines 11, 12, and 13:

> The problem to be solved is therefore to invent a method for regulating the complexity requirements of the bitstream in terms of computational and memory requirements.

Since Tan seeks to regulate the complexity requirements of a bitstream in terms of computational and memory requirements, Tan is not "determining the performance level of a machine" at all, let alone "through measurement, in the system, of a time required for coding of a video object plane (VOP)," as recited in independent claim 1.

Tan, moreover, is *constraining* the resource requirements in a decoder by considering the

computational as well as the memory requirements of the bitstreams, not determining "the performance level of the machine," as recited in independent claim 1. In particular, as described at column 3, lines 31-34:

> By considering the computational as well as the memory requirements of the bitstreams we can accurately constraint the resource requirements in the decoder.

Since Tan constrains the resource requirements in a decoder by considering the computational as well as the memory requirements of the bitstreams, Tan is not "determining the performance level of a machine" at all, let alone "through measurement, in the system, of a time required for coding of a video object plane (VOP)," as recited in independent claim 1.

Tan, moreover, specifies the behavior of a decoder for variable VOP size and rate to measure and verify the computational and memory resources that the *bitstream* demands, rather than determines "the performance level of the machine," as recited in independent claim 1. In particular, as described at column 3, lines 64-67:

> The models specify the behavior of a decoder for variable VOP size and rate and define new parameters and bounds to measure and verify the computational and memory resources that the bitstream demands, see.

Since Tan specifies the behavior of a decoder for variable VOP size and rate to measure and verify the computational and memory resources that the bitstream demands, Tan is not "determining the performance level of a machine" at all, let alone "through measurement, in the system, of a time required for coding of a video object plane (VOP)," as recited in independent claim 1.

Tan, moreover, is *monitoring* the complexity units requirements of the bitstream and adjusting the decoding time stamp of the VOP, rather than determining "the performance level of the machine," as recited in independent claim 1. In particular, as described at column 4, lines 19-22:

> Therefore by monitoring the complexity units requirements of the bitstream and adjusting the decoding time stamp of the VOP the virtual decoder is able to prevent the memory usage from exceeding its bound.

Since Tan is monitoring the complexity units requirements of the bitstream and adjusting the decoding time stamp of the VOP, Tan is not "determining the performance level of a machine" at all, let alone "through measurement, in the system, of a time required for coding of a video object plane (VOP)," as recited in independent claim 1.

Tan, moreover, checks a bitstream with the delivery rate function R(t) of the video buffering verifier (VBV) to verify that the amount of rate buffer memory *required* in a decoder is less than the stated buffer size, rather than determines "the performance level of the machine," as recited in independent claim 1. In particular, as described at column 11, lines 29-32:

> The video buffering verifier (VBV) is an algorithm for checking a bitstream with its delivery rate function, R(t), to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size.

Since Tan checks a bitstream with the delivery rate function R(t) of the video buffering verifier (VBV) to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size, Tan is not "determining the performance level of a machine" at all, let alone "through measurement, in the system, of a time required for coding of a video object plane (VOP)," as recited in independent claim 1.

Tan, moreover, denotes the instantaneous video object layer channel bit rate *seen* by the encoder by $R_{vol\,(t)}$ in bits per second, rather than determines "the performance level of the machine," as recited in independent claim 1. In particular, as described at column 11, lines 64-67, continuing at column 12, lines 1 and 2:

> 3. The instantaneous video object layer channel bit rate seen by the encoder is denoted by $R_{vol\,(t)}$ in bits per second. If the bit_rate field in the VOL header is present, it defines a peak rate (in units of 400 bits per second; a value of 0 is forbidden) such that $R_{vol\,(t)}$<=400 X bit_rate.

Since Tan denotes the instantaneous video object layer channel bit rate seen by the encoder by $R_{vol\,(t)}$ in bits per second, Tan is not "determining the performance level of a machine" at all, let alone "through measurement, in the system, of a time required for coding of a video object plane (VOP)," as recited in independent claim 1.

Tan, in fact, wants to determine the *decoding* time t_i associated with a VOP, rather than "the performance level of the machine," as recited in independent claim 1. In particular, as described at column 12, lines 22-28:

> 6. Let t_i be the decoding time associated with VOP i in decoding order. All bits (d_i) of VOP i are removed from the VBV buffer instantaneously at t_i. This instantaneous removal property distinguishes the VBV buffer model from a real rate buffer. The method of determining the value of t_i is defined in item 7 below.

Since Tan wants to determine the *decoding* time t_i associated with a VOP, Tan is not "determining the performance level of a machine" at all, let alone "through measurement, in the system, of a time required for coding of a video object plane (VOP)," as recited in independent

claim 1.

Nor is the composition time of VOP i T_i of Tan a "time required for coding of a video object plane (VOP)," contrary to the Examiner's assertion in section 2, at page 5, lines 6 and 7 of the final Office Action mailed July 27, 2007. The decoding time t_i associated with a VOP of Tan, in fact, is *defined* in terms of the composition time of VOP i T_i. In particular, as described at column 12, lines 36-42:

> The relationship between the composition time and the decoding time for a VOP is given by:
>
> $t_i = \tau_i$ if ((vop_coding_type of VOP i==B-VOP)||low_delay||scalability)
>
> $t_i = \tau_i - m_i$ otherwise

Since the decoding time t_i associated with a VOP is defined in terms of the composition time of VOP i T_i, the composition time of VOP i T_i is not a "time required for coding of a video object plane (VOP)," and Tan is not measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 1.

Kato, for its part, sets quantization coefficients for a face area to be greater than those for other areas than the face area, so a face area with great significance can be re-compressed without degradation of image quality, while an area with less significance such as background can be compressed with high efficiency. In particular, as described in the Abstract:

> In a multipoint connection device connecting a plurality of video conference terminals, image data transmitted from a terminal is decoded, and a face area in the image data is recognized. Then, quantization coefficients for the face area are set to be greater coefficients than those for other areas than the face area, then the image data is compressed, and delivered to the respective terminals. By this arrangement, in image data, a face area with great significance can be re-compressed without degradation of image quality, while an area with less significance such as background can be compressed with high efficiency.

Since Kato is setting quantization coefficients for a face area to be greater than those for other areas than the face area, Kato is not "determining the performance level of a machine" either, let alone "through measurement, in the system, of a time required for coding of a video object plane (VOP)," as recited in independent claim 1. Thus, even if Tan and Kato were combined, independent claim 1 would not result.

Accordingly, because neither Tan nor Kato, nor their combination, disclose all of the features of independent claim 1, the Examiner has failed to set forth a prima facie case of

obviousness of independent claim 1 by Tan in view of Kato. Appellants, therefore, request respectfully that the rejection of independent claim 1 be withdrawn.

Second, independent claim 1 is patentable over Tan in view of Kato because neither Tan nor Kato, nor their combination, disclose all of the features of independent claim 1.

Neither Tan nor Kato, for example, disclose "causing each distribution module to change, in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in the fourth clause of independent claim 1. Tan, rather, uses the VBV algorithm for checking a bit stream with its delivery rate function to make sure that the delivery rate does not overwhelm the receiving system, as acknowledged graciously by the Examiner in section 2, at page 5, lines 10, 11, and 12 of the final Office Action mailed July 27, 2007. Since Tan uses the VBV algorithm for checking a bit stream with its delivery rate function to make sure that the delivery rate does not overwhelm the receiving system, Tan is not "causing each distribution module to change, in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in independent claim 1.

The Examiner, in fact, recognizes in section 5(b), at page 3 of the final Office Action mailed July 27, 2007 that:

> It is noted that VBV is an algorithm for checking a bit stream with its delivery rate function to make sure that the delivery rate does not overwhelm the receiving system (Col. 11, lines 29-43) thus allowing for high efficiency.

Since Tan uses the VBV algorithm for checking a bit stream with its delivery rate function to make sure that the delivery rate does not overwhelm the receiving system, Tan is not "causing each distribution module to change, in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in independent claim 1.

The video buffering verifier (VBV) in Tan, moreover, is an algorithm for checking a *bitstream* with its delivery rate function, R(t), to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size. In particular, as described at column 11, lines 29-32:

> The video buffering verifier (VBV) is an algorithm for checking a bitstream with its delivery rate function, R(t), to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size.

Since the video buffering verifier (VBV) in Tan is an algorithm for checking a bitstream with its delivery rate function, R(t), to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size, Tan is not "causing each distribution module to change, in

accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in independent claim 1.

Finally, the virtual decoder in Tan is *allowed* to use less time on a simple VOP and more time on a complex VOP, rather than changing "in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in independent claim 1. In particular, as described at column 4, lines 22-25:

> Thus the virtual decoder is allowed to use less time on a simple VOP and more time on a complex VOP.

Since the virtual decoder in Tan is allowed to use less time on a simple VOP and more time on a complex VOP, Tan is not "causing each distribution module to change, in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in independent claim 1.

Kato, for its part, sets quantization coefficients for a face area to be greater than those for areas other than the face area, so a face area with great significance can be re-compressed without degradation of image quality, while an area with less significance such as background can be compressed with high efficiency, as discussed above. Since Kato is sending quantization coefficients for a face area to be greater than those for other areas than the face area, Kato is not "causing each distribution module to change, in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in independent claim 1. Thus, even if Tan and Kato were combined, independent claim 1 would not result.

Accordingly, because neither Tan nor Kato, nor their combination, disclose all of the features of independent claim 1, the Examiner has failed to set forth a prima facie case of obviousness of independent claim 1 by Tan in view of Kato. Appellants, therefore, request respectfully that the rejection of independent claim 1 be withdrawn.

Third, independent claim 1 is patentable over Tan in view of Kato because the Examiner has not made out a prima facie case of obviousness with respect to the combination of Tan in view of Kato proposed by the Examiner.

The Examiner acknowledges in section 2 of the final Office Action mailed July 27, 2007, in the last full paragraph at page 5, that:

> Tan teaches of input data being pictures (Col. 2, line 30), however Tan does not teach the input pictures are provided by a plurality of video cameras.

The Examiner seeks to compensate for this deficiency of Tan by combining Tan with Kato, asserting further in section 2 of the final Office Action mailed July 27, 2007 also in the last full paragraph at page 5, that:

> Kato teaches of a data communication system using multiple input cameras and processors to allow transmission of images through network communication (Fig. 2).

This is submitted to be incorrect. Kato, rather, shows only one face-area recognition unit 15 in Fig. 2, and mentions no plurality of video cameras at all. In particular, as described at column 4, lines 26-34:

> Numeral 15 denotes a face-area recognition unit which recognizes a face area of a person from image data decoded by the image decoder 14; 16, an image encoder which again compresses the image data decoded by the image decoder 14; and 17, a quantization controller which performs quantization control upon re-compression by the image encoder 16, in accordance with the result of face area recognition by the face-area recognition unit 15.

Since Kato shows only one face-area recognition unit 15 in Fig. 2, and mentions no plurality of video cameras at all, Kato shows no input pictures provided by a plurality of video cameras either, and thus cannot make up for the deficiencies of Tan in any case.

The test for obviousness under 35 U.S.C. § 103 (a), moreover, is set forth by the United States Supreme Court in *Graham v. John Deere, Co.*, 383 U.S. 1, 17-18 (1966). As mandated therein, in an obviousness determination under 35 U.S.C. § 103, the scope and content of the prior art are to be determined, the differences between the prior art and the claims at issue are to be ascertained and the level of ordinary skill in the pertinent art resolved. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577 (Fed. Cir. 1984). A suggestion, teaching or motivation to combine the prior art references is an "essential evidentiary component of an obviousness holding." *C.R. Bard, Inc. v. MP3 Sys., Inc.*, 157 F.3d 1340, 1352 (Fed. Cir. 1998). "When a rejection depends on a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references." *In re Rouffet*, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998). Furthermore, the suggestion must be clear and particular; broad conclusory statements about the teaching of multiple references, standing alone, are not "evidence." *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120 (Fed. Cir. 2000). "The board cannot rely on conclusory statements when dealing with particular

combinations of prior art and specific claims, but must set forth the rationale on which it relies." *In re Lee*, 277 F.3d 1338, 1344, 61 U.S.P.Q.2d 1430,1434 (Fed. Cir. 2002).

Here, the Examiner has pointed to no evidence, either in the references or the general knowledge of the prior art, of a suggestion or motivation to combine the references in the proposed manner. The broad conclusory statement by the Examiner in section 2, in the last full paragraph at page 5 of the final Office Action mailed July 27, 2007, that:

> Thus Kato's data communication system reads on the claimed camera input data. Therefore, it is obvious to one ordinarily skilled in the art at the time of the invention to combine the bit-stream compression system of Tan with the camera since it is well known in the art to use cameras to obtain images.

in particular, is not "evidence" of a suggestion or motivation to combine the references as required for a finding of obviousness. Rather, it is simply hindsight reasoning, a simple regurgitation of the claimed invention itself.

Accordingly, because the Examiner has not made out a prima facie case of obviousness with respect to the combination of Tan in view of Kato proposed by the Examiner, independent claim 1 is patentable over Tan in view of Kato. Appellants, therefore, request respectfully that the rejection of independent claim 1 be withdrawn.

B. Independent claim 3:

First, independent claim 3 is patentable over Tan in view of Kato because neither Tan nor Kato, nor their combination, disclose all of the features of independent claim 3.

Neither Tan nor Kato, for example, disclose a "performance level of a machine to be used is determined through measurement, in the system, of a time required for coding of a video object plane (VOP)," as recited in the third clause of independent claim 3. Tan, rather, seeks to regulate the complexity requirements of a *bitstream* in terms of computational and memory requirements, not determine a "performance level of a machine," as recited in independent claim 3. In particular, as described at column 3, lines 11, 12, and 13:

> The problem to be solved is therefore to invent a method for regulating the complexity requirements of the bitstream in terms of computational and memory requirements.

Since Tan seeks to regulate the complexity requirements of a bitstream in terms of computational and memory requirements, Tan is not determining a "performance level of a machine" at all, let alone by measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 3.

Tan, moreover, is *constraining* the resource requirements in a decoder by considering the computational as well as the memory requirements of the bitstreams, not determining a "performance level of a machine," as recited in independent claim 3. In particular, as described at column 3, lines 31-34:

> By considering the computational as well as the memory requirements of the bitstreams we can accurately constraint the resource requirements in the decoder.

Since Tan constrains the resource requirements in a decoder by considering the computational as well as the memory requirements of the bitstreams, Tan is not determining a "performance level of a machine" at all, let alone by measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 3.

Tan, moreover, *specifies* the behavior of a decoder for variable VOP size and rate to measure and verify the computational and memory resources that the bitstream demands, rather than determines a "performance level of a machine," as recited in independent claim 3. In particular, as described at column 3, lines 64-67:

> The models specify the behavior of a decoder for variable VOP size and rate and define new parameters and bounds to measure and verify the computational and memory resources that the bitstream demands, see.

Since Tan specifies the behavior of a decoder for variable VOP size and rate to measure and verify the computational and memory resources that the bitstream demands, Tan is not determining a "performance level of a machine" at all, let alone by measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 3.

Tan, moreover, is *monitoring* the complexity units requirements of the bitstream and adjusting the decoding time stamp of the VOP, rather than determining a "performance level of a machine," as recited in independent claim 3. In particular, as described at column 4, lines 19-22:

> Therefore by monitoring the complexity units requirements of the bitstream and adjusting the decoding time stamp of the VOP the virtual decoder is able to prevent the memory usage from exceeding its bound.

Since Tan is monitoring the complexity units requirements of the bitstream and adjusting the decoding time stamp of the VOP, Tan is not determining a "performance level of a machine" at all, let alone by measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 3.

Tan, moreover, checks a bitstream with the delivery rate function R(t) of the video

buffering verifier (VBV) to verify that the amount of rate buffer memory *required* in a decoder is less than the stated buffer size, rather than determines a "performance level of a machine," as recited in independent claim 3. In particular, as described at column 11, lines 29-32:

> The video buffering verifier (VBV) is an algorithm for checking a bitstream with its delivery rate function, R(t), to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size.

Since Tan checks a bitstream with the delivery rate function R(t) of the video buffering verifier (VBV) to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size, Tan is not determining a "performance level of a machine" at all, let alone by measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 3.

Tan, moreover, denotes the instantaneous video object layer channel bit rate *seen* by the encoder by $R_{vol\,(t)}$ in bits per second, rather than determines a "performance level of a machine," as recited in independent claim 3. In particular, as described at column 11, lines 64-67, continuing at column 12, lines 1 and 2:

> 3. The instantaneous video object layer channel bit rate seen by the encoder is denoted by $R_{vol\,(t)}$ in bits per second. If the bit_rate field in the VOL header is present, it defines a peak rate (in units of 400 bits per second; a value of 0 is forbidden) such that $R_{vol\,(t)}$<=400 X bit_rate.

Since Tan denotes the instantaneous video object layer channel bit rate seen by the encoder by $R_{vol\,(t)}$ in bits per second, Tan is not determining a "performance level of a machine" at all, let alone by measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 3.

Tan, in fact, wants to determine the *decoding* time t_i associated with a VOP, rather than a "performance level of a machine," as recited in independent claim 3. In particular, as described at column 12, lines 22-28:

> 6. Let t_i be the decoding time associated with VOP i in decoding order. All bits (d_i) of VOP i are removed from the VBV buffer instantaneously at t_i. This instantaneous removal property distinguishes the VBV buffer model from a real rate buffer. The method of determining the value of t_i is defined in item 7 below.

Since Tan wants to determine the *decoding* time t_i associated with a VOP, Tan is not determining a "performance level of a machine" at all, let alone by measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 3.

Nor is the composition time of VOP i T_i of Tan a "time required for coding of a video

object plane (VOP)," contrary to the Examiner's assertion in section 2, at page 5, lines 6 and 7 of the final Office Action mailed July 27, 2007. The decoding time t_i associated with a VOP of Tan, in fact, is *defined* in terms of the composition time of VOP i T_i. In particular, as described at column 12, lines 36-42:

> The relationship between the composition time and the decoding time for a VOP is given by:
>
> $t_i=\tau_i$ if ((vop_coding_type of VOP i==B-VOP)||low_delay||scalability)
>
> $t_i=\tau_i-m_i$ otherwise

Since the decoding time t_i associated with a VOP is defined in terms of the composition time of VOP i T_i, Tan is not measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 3.

Kato, for its part, sets quantization coefficients for a face area to be greater than those for other areas than the face area, so a face area with great significance can be re-compressed without degradation of image quality, while an area with less significance such as background can be compressed with high efficiency. In particular, as described in the Abstract:

> In a multipoint connection device connecting a plurality of video conference terminals, image data transmitted from a terminal is decoded, and a face area in the image data is recognized. Then, quantization coefficients for the face area are set to be greater coefficients than those for other areas than the face area, then the image data is compressed, and delivered to the respective terminals. By this arrangement, in image data, a face area with great significance can be re-compressed without degradation of image quality, while an area with less significance such as background can be compressed with high efficiency.

Since Kato is setting quantization coefficients for a face area to be greater than those for other areas than the face area, Kato is not determining a "performance level of a machine" either, let alone by measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 3. Thus, even if Tan and Kato were combined, independent claim 3 would not result.

Accordingly, because neither Tan nor Kato, nor their combination, disclose all of the features of independent claim 3, the Examiner has failed to set forth a <u>prima facie</u> case of obviousness of independent claim 3 by Tan in view of Kato. Appellants, therefore, request respectfully that the rejection of independent claim 3 be withdrawn.

<u>Second</u>, independent claim 3 is patentable over Tan in view of Kato because neither Tan nor Kato, nor their combination, disclose all of the features of independent claim 3.

Neither Tan nor Kato, for example, disclose changing "in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in the fourth clause of independent claim 3. Tan, rather, uses the VBV algorithm for checking a bit stream with its delivery rate function to make sure that the delivery rate does not overwhelm the receiving system, as acknowledged graciously by the Examiner in section 2, at page 5, lines 10, 11, and 12 of the final Office Action mailed July 27, 2007. Since Tan uses the VBV algorithm for checking a bit stream with its delivery rate function to make sure that the delivery rate does not overwhelm the receiving system, Tan is not changing "in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in the fourth clause of independent claim 3.

The Examiner, in fact, recognizes in section 5(b), at page 3 of the final Office Action mailed July 27, 2007 that:

> It is noted that VBV is an algorithm for checking a bit stream with its delivery rate function to make sure that the delivery rate does not overwhelm the receiving system (Col. 11, lines 29-43) thus allowing for high efficiency.

Since Tan uses the VBV algorithm for checking a bit stream with its delivery rate function to make sure that the delivery rate does not overwhelm the receiving system, Tan is not changing "in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in the fourth clause of independent claim 3.

The video buffering verifier (VBV) in Tan, moreover, is an algorithm for checking a *bitstream* with its delivery rate function, R(t), to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size. In particular, as described at column 11, lines 29-32:

> The video buffering verifier (VBV) is an algorithm for checking a bitstream with its delivery rate function, R(t), to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size.

Since the video buffering verifier (VBV) in Tan is an algorithm for checking a bitstream with its delivery rate function, R(t), to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size, Tan is not changing "in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in independent claim 3.

Finally, the virtual decoder in Tan is *allowed* to use less time on a simple VOP and more time on a complex VOP, rather than changing "in accordance with the performance level, a kind

and use frequency of a video object plane (VOP) to be used," as recited in independent claim 1. In particular, as described at column 4, lines 22-25:

> Thus the virtual decoder is allowed to use less time on a simple VOP and more time on a complex VOP.

Since the virtual decoder in Tan is allowed to use less time on a simple VOP and more time on a complex VOP, Tan is not changing "in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in independent claim 3.

Kato, for its part, sets quantization coefficients for a face area to be greater than those for areas other than the face area, so a face area with great significance can be re-compressed without degradation of image quality, while an area with less significance such as background can be compressed with high efficiency, as discussed above. Since Kato is sending quantization coefficients for a face area to be greater than those for other areas than the face area, Kato is not changing "in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in independent claim 3. Thus, even if Tan and Kato were combined, independent claim 3 would not result.

Accordingly, because neither Tan nor Kato, nor their combination, disclose all of the features of independent claim 3, the Examiner has failed to set forth a prima facie case of obviousness of independent claim 3 by Tan in view of Kato. Appellants, therefore, request respectfully that the rejection of independent claim 3 be withdrawn.

Third, independent claim 3 is patentable over Tan in view of Kato because the Examiner has not made out a prima facie case of obviousness with respect to the combination of Tan in view of Kato proposed by the Examiner.

The Examiner acknowledges in section 2 of the final Office Action mailed July 27, 2007, in the last full paragraph at page 5, that:

> Tan teaches of input data being pictures (Col. 2, line 30), however Tan does not teach the input pictures are provided by a plurality of video cameras.

The Examiner seeks to compensate for this deficiency of Tan by combining Tan with Kato, asserting further in section 2 of the final Office Action mailed July 27, 2007 also in the last full paragraph at page 5, that:

> Kato teaches of a data communication system using multiple input cameras and processors to allow transmission of images through network communication (Fig. 2).

This is submitted to be incorrect. Kato, rather, shows only one face-area recognition unit 15 in Fig. 2, and mentions no plurality of video cameras at all. In particular, as described at column 4, lines 26-34:

> Numeral 15 denotes a face-area recognition unit which recognizes a face area of a person from image data decoded by the image decoder 14; 16, an image encoder which again compresses the image data decoded by the image decoder 14; and 17, a quantization controller which performs quantization control upon re-compression by the image encoder 16, in accordance with the result of face area recognition by the face-area recognition unit 15.

Since Kato shows only one face-area recognition unit 15 in Fig. 2, and mentions no plurality of video cameras at all, Kato shows no input pictures provided by a plurality of video cameras either, and thus cannot make up for the deficiencies of Tan in any case.

The Examiner, moreover, has pointed to no evidence, either in the references or the general knowledge of the prior art, of a suggestion or motivation to combine the references in the proposed manner. The broad conclusory statement by the Examiner in section 2, in the last full paragraph at page 5 of the final Office Action mailed July 27, 2007, that:

> Thus Kato's data communication system reads on the claimed camera input data. Therefore, it is obvious to one ordinarily skilled in the art at the time of the invention to combine the bit-stream compression system of Tan with the camera since it is well known in the art to use cameras to obtain images.

in particular, is not "evidence" of a suggestion or motivation to combine the references as required for a finding of obviousness. Rather, it is simply hindsight reasoning, a simple regurgitation of the claimed invention itself.

Accordingly, because the Examiner has not made out a prima facie case of obviousness with respect to the combination of Tan in view of Kato proposed by the Examiner, independent claim 3 is patentable over Tan in view of Kato. Appellants, therefore, request respectfully that the rejection of independent claim 3 be withdrawn.

C. Independent claim 9:

First, independent claim 9 is patentable over Tan in view of Kato because neither Tan nor Kato, nor their combination, disclose all of the features of independent claim 9.

Neither Tan nor Kato, for example, disclose "determining the performance level of a machine to be used through measurement, in the system, of a time required for coding of a video object plane (VOP)," as recited in the second clause of independent claim 9. Tan, rather, seeks to regulate the complexity requirements of a *bitstream* in terms of computational and

memory requirements, not determine a "performance level of a machine," as recited in independent claim 9. In particular, as described at column 3, lines 11, 12, and 13:

> The problem to be solved is therefore to invent a method for regulating the complexity requirements of the bitstream in terms of computational and memory requirements.

Since Tan seeks to regulate the complexity requirements of a bitstream in terms of computational and memory requirements, Tan is not "determining the performance level of a machine" at all, let alone by measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 9.

Tan, moreover, is *constraining* the resource requirements in a decoder by considering the computational as well as the memory requirements of the bitstreams, not determining a "performance level of a machine," as recited in independent claim 9. In particular, as described at column 3, lines 31-34:

> By considering the computational as well as the memory requirements of the bitstreams we can accurately constraint the resource requirements in the decoder.

Since Tan constrains the resource requirements in a decoder by considering the computational as well as the memory requirements of the bitstreams, Tan is not "determining the performance level of a machine" at all, let alone by measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 9.

Tan, moreover, *specifies* the behavior of a decoder for variable VOP size and rate to measure and verify the computational and memory resources that the bitstream demands, rather than determines a "performance level of a machine," as recited in independent claim 9. In particular, as described at column 3, lines 64-67:

> The models specify the behavior of a decoder for variable VOP size and rate and define new parameters and bounds to measure and verify the computational and memory resources that the bitstream demands, see.

Since Tan specifies the behavior of a decoder for variable VOP size and rate to measure and verify the computational and memory resources that the bitstream demands, Tan is not "determining the performance level of a machine" at all, let alone by measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 9.

Tan, moreover, is *monitoring* the complexity units requirements of the bitstream and adjusting the decoding time stamp of the VOP, rather than determining a "performance level of a

machine," as recited in independent claim 9. In particular, as described at column 4, lines 19-22:

> Therefore by monitoring the complexity units requirements of the bitstream and adjusting the decoding time stamp of the VOP the virtual decoder is able to prevent the memory usage from exceeding its bound.

Since Tan is monitoring the complexity units requirements of the bitstream and adjusting the decoding time stamp of the VOP, Tan is not "determining the performance level of a machine" at all, let alone by measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 9.

Tan, moreover, checks a bitstream with the delivery rate function R(t) of the video buffering verifier (VBV) to verify that the amount of rate buffer memory *required* in a decoder is less than the stated buffer size, rather than determines a "performance level of a machine," as recited in independent claim 9. In particular, as described at column 11, lines 29-32:

> The video buffering verifier (VBV) is an algorithm for checking a bitstream with its delivery rate function, R(t), to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size.

Since Tan checks a bitstream with the delivery rate function R(t) of the video buffering verifier (VBV) to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size, Tan is not "determining the performance level of a machine" at all, let alone by measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 9.

Tan, moreover, denotes the instantaneous video object layer channel bit rate *seen* by the encoder by $R_{vol\,(t)}$ in bits per second, rather than determines a "performance level of a machine," as recited in independent claim 9. In particular, as described at column 11, lines 64-67, continuing at column 12, lines 1 and 2:

> 3. The instantaneous video object layer channel bit rate seen by the encoder is denoted by $R_{vol\,(t)}$ in bits per second. If the bit_rate field in the VOL header is present, it defines a peak rate (in units of 400 bits per second; a value of 0 is forbidden) such that $R_{vol\,(t)}$<=400 X bit_rate.

Since Tan denotes the instantaneous video object layer channel bit rate seen by the encoder by $R_{vol\,(t)}$ in bits per second, Tan is not "determining the performance level of a machine" at all, let alone by measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 9.

Tan, in fact, wants to determine the *decoding* time t_i associated with a VOP, rather than a

"performance level of a machine," as recited in independent claim 9. In particular, as described at column 12, lines 22-28:

> 6. Let t_i be the decoding time associated with VOP i in decoding order. All bits (d_i) of VOP i are removed from the VBV buffer instantaneously at t_i. This instantaneous removal property distinguishes the VBV buffer model from a real rate buffer. The method of determining the value of t_i is defined in item 7 below.

Since Tan wants to determine the *decoding* time t_i associated with a VOP, Tan is not "determining the performance level of a machine" at all, let alone by measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 9.

Nor is the composition time of VOP i T_i of Tan a "time required for coding of a video object plane (VOP)," contrary to the Examiner's assertion in section 2, at page 5, lines 6 and 7 of the final Office Action mailed July 27, 2007. The decoding time t_i associated with a VOP of Tan, in fact, is *defined* in terms of the composition time of VOP i T_i. In particular, as described at column 12, lines 36-42:

> The relationship between the composition time and the decoding time for a VOP is given by:
>
> $t_i = \tau_i$ if ((vop_coding_type of VOP i==B-VOP)||low_delay||scalability)
>
> $t_i = \tau_i - m_i$ otherwise

Since the decoding time t_i associated with a VOP is defined in terms of the composition time of VOP i T_i, Tan is not measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 9.

Kato, for its part, sets quantization coefficients for a face area to be greater than those for other areas than the face area, so a face area with great significance can be re-compressed without degradation of image quality, while an area with less significance such as background can be compressed with high efficiency. In particular, as described in the Abstract:

> In a multipoint connection device connecting a plurality of video conference terminals, image data transmitted from a terminal is decoded, and a face area in the image data is recognized. Then, quantization coefficients for the face area are set to be greater coefficients than those for other areas than the face area, then the image data is compressed, and delivered to the respective terminals. By this arrangement, in image data, a face area with great significance can be re-compressed without degradation of image quality, while an area with less significance such as background can be compressed with high efficiency.

Since Kato is setting quantization coefficients for a face area to be greater than those for other areas than the face area, Kato is not "determining the performance level of a machine" either, let

alone by measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 9. Thus, even if Tan and Kato were combined, independent claim 9 would not result.

Accordingly, because neither Tan nor Kato, nor their combination, disclose all of the features of independent claim 9, the Examiner has failed to set forth a prima facie case of obviousness of independent claim 9 by Tan in view of Kato. Appellants, therefore, request respectfully that the rejection of independent claim 9 be withdrawn.

Second, independent claim 9 is patentable over Tan in view of Kato because neither Tan nor Kato, nor their combination, disclose all of the features of independent claim 9.

Neither Tan nor Kato, for example, disclose changing "in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in the third clause of independent claim 9. Tan, rather, uses the VBV algorithm for checking a bit stream with its delivery rate function to make sure that the delivery rate does not overwhelm the receiving system, as acknowledged graciously by the Examiner in section 2, at page 5, lines 10, 11, and 12 of the final Office Action mailed July 27, 2007. Since Tan uses the VBV algorithm for checking a bit stream with its delivery rate function to make sure that the delivery rate does not overwhelm the receiving system, Tan is not changing "in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in the fourth clause of independent claim 9.

The Examiner, in fact, recognizes in section 5(b), at page 3 of the final Office Action mailed July 27, 2007 that:

> It is noted that VBV is an algorithm for checking a bit stream with its delivery rate function to make sure that the delivery rate does not overwhelm the receiving system (Col. 11, lines 29-43) thus allowing for high efficiency.

Since Tan uses the VBV algorithm for checking a bit stream with its delivery rate function to make sure that the delivery rate does not overwhelm the receiving system, Tan is not changing "in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in the fourth clause of independent claim 9.

The video buffering verifier (VBV) in Tan, moreover, is an algorithm for checking a *bitstream* with its delivery rate function, R(t), to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size. In particular, as described at column 11, lines 29-32:

> The video buffering verifier (VBV) is an algorithm for checking a bitstream with its delivery rate function, R(t), to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size.

Since the video buffering verifier (VBV) in Tan is an algorithm for checking a bitstream with its delivery rate function, R(t), to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size, Tan is not changing "in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in independent claim 9.

Finally, the virtual decoder in Tan is *allowed* to use less time on a simple VOP and more time on a complex VOP, rather than changing "in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in independent claim 1. In particular, as described at column 4, lines 22-25:

> Thus the virtual decoder is allowed to use less time on a simple VOP and more time on a complex VOP.

Since the virtual decoder in Tan is allowed to use less time on a simple VOP and more time on a complex VOP, Tan is not changing "in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in independent claim 9.

Kato, for its part, sets quantization coefficients for a face area to be greater than those for areas other than the face area, so a face area with great significance can be re-compressed without degradation of image quality, while an area with less significance such as background can be compressed with high efficiency, as discussed above. Since Kato is sending quantization coefficients for a face area to be greater than those for other areas than the face area, Kato is not changing "in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used," as recited in independent claim 9. Thus, even if Tan and Kato were combined, independent claim 9 would not result.

Accordingly, because neither Tan nor Kato, nor their combination, disclose all of the features of independent claim 9, the Examiner has failed to set forth a prima facie case of obviousness of independent claim 9 by Tan in view of Kato. Appellants, therefore, request respectfully that the rejection of independent claim 9 be withdrawn.

Third, independent claim 9 is patentable over Tan in view of Kato because the Examiner has not made out a prima facie case of obviousness with respect to the combination of Tan in view of Kato proposed by the Examiner.

The Examiner acknowledges in section 2 of the final Office Action mailed July 27, 2007, in the last full paragraph at page 5, that:

> Tan teaches of input data being pictures (Col. 2, line 30), however Tan does not teach the input pictures are provided by a plurality of video cameras.

The Examiner seeks to compensate for this deficiency of Tan by combining Tan with Kato, asserting further in section 2 of the final Office Action mailed July 27, 2007 also in the last full paragraph at page 5, that:

> Kato teaches of a data communication system using multiple input cameras and processors to allow transmission of images through network communication (Fig. 2).

This is submitted to be incorrect. Kato, rather, shows only one face-area recognition unit 15 in Fig. 2, and mentions no plurality of video cameras at all. In particular, as described at column 4, lines 26-34:

> Numeral 15 denotes a face-area recognition unit which recognizes a face area of a person from image data decoded by the image decoder 14; 16, an image encoder which again compresses the image data decoded by the image decoder 14; and 17, a quantization controller which performs quantization control upon re-compression by the image encoder 16, in accordance with the result of face area recognition by the face-area recognition unit 15.

Since Kato shows only one face-area recognition unit 15 in Fig. 2, and mentions no plurality of video cameras at all, Kato shows no input pictures provided by a plurality of video cameras either, and thus cannot make up for the deficiencies of Tan in any case.

The Examiner, moreover, has pointed to no evidence, either in the references or the general knowledge of the prior art, of a suggestion or motivation to combine the references in the proposed manner. The broad conclusory statement by the Examiner in section 2, in the last full paragraph at page 5 of the final Office Action mailed July 27, 2007, that:

> Thus Kato's data communication system reads on the claimed camera input data. Therefore, it is obvious to one ordinarily skilled in the art at the time of the invention to combine the bit-stream compression system of Tan with the camera since it is well known in the art to use cameras to obtain images.

in particular, is not "evidence" of a suggestion or motivation to combine the references as required for a finding of obviousness. Rather, it is simply hindsight reasoning, a simple regurgitation of the claimed invention itself.

Accordingly, because the Examiner has not made out a prima facie case of obviousness with respect to the combination of Tan in view of Kato proposed by the Examiner, independent claim 9 is patentable over Tan in view of Kato. Appellants, therefore, request respectfully that the rejection of independent claim 9 be withdrawn.

D. Independent claim 10:

First, independent claim 10 is patentable over Tan in view of Kato because neither Tan nor Kato, nor their combination, disclose all of the features of independent claim 10.

Neither Tan nor Kato, for example, disclose "determining the performance level of a distribution unit by measuring the time required for coding of a video object plane," as recited in the fifth clause of independent claim 10. Tan, rather, seeks to regulate the complexity requirements of a *bitstream* in terms of computational and memory requirements, not determine "the performance level of a distribution unit," as recited in independent claim 10. In particular, as described at column 3, lines 11, 12, and 13:

> The problem to be solved is therefore to invent a method for regulating the complexity requirements of the bitstream in terms of computational and memory requirements.

Since Tan seeks to regulate the complexity requirements of a bitstream in terms of computational and memory requirements, Tan is not "determining the performance level of a distribution unit" at all, let alone by "measuring the time required for coding of a video object plane," as recited in independent claim 10.

Tan, moreover, is *constraining* the resource requirements in a decoder by considering the computational as well as the memory requirements of the bitstreams, not determining a "the performance level of a distribution unit," as recited in independent claim 10. In particular, as described at column 3, lines 31-34:

> By considering the computational as well as the memory requirements of the bitstreams we can accurately constraint the resource requirements in the decoder.

Since Tan constrains the resource requirements in a decoder by considering the computational as well as the memory requirements of the bitstreams, Tan is not "determining the performance level of a distribution unit" at all, let alone by "measuring the time required for coding of a video object plane," as recited in independent claim 10.

Tan, moreover, *specifies* the behavior of a decoder for variable VOP size and rate to measure and verify the computational and memory resources that the bitstream demands, rather

than determines "the performance level of a distribution unit," as recited in independent claim 10. In particular, as described at column 3, lines 64-67:

> The models specify the behavior of a decoder for variable VOP size and rate and define new parameters and bounds to measure and verify the computational and memory resources that the bitstream demands, see.

Since Tan specifies the behavior of a decoder for variable VOP size and rate to measure and verify the computational and memory resources that the bitstream demands, Tan is not "determining the performance level of a distribution unit" at all, let alone by "measuring the time required for coding of a video object plane," as recited in independent claim 10.

Tan, moreover, is *monitoring* the complexity units requirements of the bitstream and adjusting the decoding time stamp of the VOP, rather than determining "the performance level of a distribution unit," as recited in independent claim 10. In particular, as described at column 4, lines 19-22:

> Therefore by monitoring the complexity units requirements of the bitstream and adjusting the decoding time stamp of the VOP the virtual decoder is able to prevent the memory usage from exceeding its bound.

Since Tan is monitoring the complexity units requirements of the bitstream and adjusting the decoding time stamp of the VOP, Tan is not "determining the performance level of a distribution unit" at all, let alone by "measuring the time required for coding of a video object plane," as recited in independent claim 10.

Tan, moreover, checks a bitstream with the delivery rate function R(t) of the video buffering verifier (VBV) to verify that the amount of rate buffer memory *required* in a decoder is less than the stated buffer size, rather than determines "the performance level of a distribution unit," as recited in independent claim 10. In particular, as described at column 11, lines 29-32:

> The video buffering verifier (VBV) is an algorithm for checking a bitstream with its delivery rate function, R(t), to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size.

Since Tan checks a bitstream with the delivery rate function R(t) of the video buffering verifier (VBV) to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size, Tan is not "determining the performance level of a distribution unit" at all, let alone by "measuring the time required for coding of a video object plane," as recited in independent claim 10.

Tan, moreover, denotes the instantaneous video object layer channel bit rate *seen* by the

encoder by $R_{vol\,(t)}$ in bits per second, rather than determines "the performance level of a distribution unit," as recited in independent claim 10. In particular, as described at column 11, lines 64-67, continuing at column 12, lines 1 and 2:

> 3. The instantaneous video object layer channel bit rate seen by the encoder is denoted by $R_{vol\,(t)}$ in bits per second. If the bit_rate field in the VOL header is present, it defines a peak rate (in units of 400 bits per second; a value of 0 is forbidden) such that $R_{vol\,(t)}$<=400 X bit_rate.

Since Tan denotes the instantaneous video object layer channel bit rate seen by the encoder by $R_{vol\,(t)}$ in bits per second, Tan is not "determining the performance level of a distribution unit" at all, let alone by "measuring the time required for coding of a video object plane," as recited in independent claim 10.

Tan, in fact, wants to determine the *decoding* time t_i associated with a VOP, rather than "the performance level of a distribution unit," as recited in independent claim 10. In particular, as described at column 12, lines 22-28:

> 6. Let t_i be the decoding time associated with VOP i in decoding order. All bits (d_i) of VOP i are removed from the VBV buffer instantaneously at t_i. This instantaneous removal property distinguishes the VBV buffer model from a real rate buffer. The method of determining the value of t_i is defined in item 7 below.

Since Tan wants to determine the *decoding* time t_i associated with a VOP, Tan is not "determining the performance level of a distribution unit" at all, let alone by "measuring the time required for coding of a video object plane," as recited in independent claim 10.

Nor is the composition time of VOP i T_i of Tan a "time required for coding of a video object plane (VOP)," contrary to the Examiner's assertion in section 2, at page 5, lines 6 and 7 of the final Office Action mailed July 27, 2007. The decoding time t_i associated with a VOP of Tan, in fact, is *defined* in terms of the composition time of VOP i T_i. In particular, as described at column 12, lines 36-42:

> The relationship between the composition time and the decoding time for a VOP is given by:
>
> $t_i=\tau_i$ if ((vop_coding_type of VOP i==B-VOP)||low_delay||scalability)
>
> $t_i=\tau_i-m_i$ otherwise

Since the decoding time t_i associated with a VOP is defined in terms of the composition time of VOP i T_i, Tan is not measuring "a time required for coding of a video object plane (VOP)," as recited in independent claim 10.

Kato, for its part, sets quantization coefficients for a face area to be greater than those for other areas than the face area, so a face area with great significance can be re-compressed without degradation of image quality, while an area with less significance such as background can be compressed with high efficiency. In particular, as described in the Abstract:

> In a multipoint connection device connecting a plurality of video conference terminals, image data transmitted from a terminal is decoded, and a face area in the image data is recognized. Then, quantization coefficients for the face area are set to be greater coefficients than those for other areas than the face area, then the image data is compressed, and delivered to the respective terminals. By this arrangement, in image data, a face area with great significance can be re-compressed without degradation of image quality, while an area with less significance such as background can be compressed with high efficiency.

Since Kato is setting quantization coefficients for a face area to be greater than those for other areas than the face area, Kato is not "determining the performance level of a distribution unit" either, let alone by "measuring the time required for coding of a video object plane," as recited in independent claim 10. Thus, even if Tan and Kato were combined, independent claim 10 would not result.

Accordingly, because neither Tan nor Kato, nor their combination, disclose all of the features of independent claim 10, the Examiner has failed to set forth a prima facie case of obviousness of independent claim 10 by Tan in view of Kato. Appellants, therefore, request respectfully that the rejection of independent claim 10 be withdrawn.

Second, independent claim 10 is patentable over Tan in view of Kato because neither Tan nor Kato, nor their combination, disclose all of the features of independent claim 10.

Neither Tan nor Kato, for example, disclose "causing the distribution unit to select a coding algorithm in accordance with the performance level," as recited in the fifth clause of independent claim 10. Tan, rather, uses the VBV algorithm for checking a bit stream with its delivery rate function to make sure that the delivery rate does not overwhelm the receiving system, as acknowledged graciously by the Examiner in section 2, at page 5, lines 10, 11, and 12 of the final Office Action mailed July 27, 2007. Since Tan uses the VBV algorithm for checking a bit stream with its delivery rate function to make sure that the delivery rate does not overwhelm the receiving system, Tan is not "causing the distribution unit to select a coding algorithm in accordance with the performance level," as recited in independent claim 10.

The Examiner, in fact, recognizes in section 5(b), at page 3 of the final Office Action mailed July 27, 2007 that:

> It is noted that VBV is an algorithm for checking a bit stream with its delivery rate function to make sure that the delivery rate does not overwhelm the receiving system (Col. 11, lines 29-43) thus allowing for high efficiency.

Since Tan uses the VBV algorithm for checking a bit stream with its delivery rate function to make sure that the delivery rate does not overwhelm the receiving system, Tan is not "causing the distribution unit to select a coding algorithm in accordance with the performance level," as recited in independent claim 10.

The video buffering verifier (VBV) in Tan, moreover, is an algorithm for checking a *bitstream* with its delivery rate function, R(t), to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size. In particular, as described at column 11, lines 29-32:

> The video buffering verifier (VBV) is an algorithm for checking a bitstream with its delivery rate function, R(t), to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size.

Since the video buffering verifier (VBV) in Tan is an algorithm for checking a bitstream with its delivery rate function, R(t), to verify that the amount of rate buffer memory required in a decoder is less than the stated buffer size, Tan is not "causing the distribution unit to select a coding algorithm in accordance with the performance level," as recited in independent claim 10.

Finally, the virtual decoder in Tan is *allowed* to use less time on a simple VOP and more time on a complex VOP. In particular, as described at column 4, lines 22-25:

> Thus the virtual decoder is allowed to use less time on a simple VOP and more time on a complex VOP.

Since the virtual decoder in Tan is allowed to use less time on a simple VOP and more time on a complex VOP, Tan is not "causing the distribution unit to select a coding algorithm in accordance with the performance level," as recited in independent claim 10.

Kato, for its part, sets quantization coefficients for a face area to be greater than those for areas other than the face area, so a face area with great significance can be re-compressed without degradation of image quality, while an area with less significance such as background can be compressed with high efficiency, as discussed above. Since Kato is sending quantization coefficients for a face area to be greater than those for other areas than the face area, Kato is not "causing the distribution unit to select a coding algorithm in accordance with the performance level," as recited in independent claim 10. Thus, even if Tan and Kato were combined, independent claim 10 would not result.

Accordingly, because neither Tan nor Kato, nor their combination, disclose all of the features of independent claim 10, the Examiner has failed to set forth a prima facie case of obviousness of independent claim 10 by Tan in view of Kato. Appellants, therefore, request respectfully that the rejection of independent claim 10 be withdrawn.

Third, independent claim 10 is patentable over Tan in view of Kato because the Examiner has not made out a prima facie case of obviousness with respect to the combination of Tan in view of Kato proposed by the Examiner.

The Examiner acknowledges in section 2 of the final Office Action mailed July 27, 2007, in the last full paragraph at page 5, that:

> Tan teaches of input data being pictures (Col. 2, line 30), however Tan does not teach the input pictures are provided by a plurality of video cameras.

The Examiner seeks to compensate for this deficiency of Tan by combining Tan with Kato, asserting further in section 2 of the final Office Action mailed July 27, 2007 also in the last full paragraph at page 5, that:

> Kato teaches of a data communication system using multiple input cameras and processors to allow transmission of images through network communication (Fig. 2).

This is submitted to be incorrect. Kato, rather, shows only one face-area recognition unit 15 in Fig. 2, and mentions no plurality of video cameras at all. In particular, as described at column 4, lines 26-34:

> Numeral 15 denotes a face-area recognition unit which recognizes a face area of a person from image data decoded by the image decoder 14; 16, an image encoder which again compresses the image data decoded by the image decoder 14; and 17, a quantization controller which performs quantization control upon re-compression by the image encoder 16, in accordance with the result of face area recognition by the face-area recognition unit 15.

Since Kato shows only one face-area recognition unit 15 in Fig. 2, and mentions no plurality of video cameras at all, Kato shows no input pictures provided by a plurality of video cameras either, and thus cannot make up for the deficiencies of Tan in any case.

The Examiner, moreover, has pointed to no evidence, either in the references or the general knowledge of the prior art, of a suggestion or motivation to combine the references in the proposed manner. The broad conclusory statement by the Examiner in section 2, in the last full paragraph at page 5 of the final Office Action mailed July 27, 2007, that:

> Thus Kato's data communication system reads on the claimed camera input data. Therefore, it is obvious to one ordinarily skilled in the art at the time of the invention to combine the bit-stream compression system of Tan with the camera since it is well known in the art to use cameras to obtain images.

in particular, is not "evidence" of a suggestion or motivation to combine the references as required for a finding of obviousness. Rather, it is simply hindsight reasoning, a simple regurgitation of the claimed invention itself.

Accordingly, because the Examiner has not made out a prima facie case of obviousness with respect to the combination of Tan in view of Kato proposed by the Examiner, independent claim 10 is patentable over Tan in view of Kato. Appellants, therefore, request respectfully that the rejection of independent claim 10 be withdrawn.

For the forgoing reasons, Appellants request respectfully that the Board reverse the outstanding rejections of the claims of this application.

CONTINGENT AUTHORIZATION TO CHARGE DEPOSIT ACCOUNT AND CONTINGENT PETITION FOR EXTENSION OF TIME

Unless a check for the present Brief on Appeal is submitted herewith for the fee required under 37 C.F.R. § 41.20(b)(2), please charge said fee to Deposit Account No. 19-3935.

Appellants hereby petitions for any extension of time that may be required to maintain the pendency of this case, and any required fee for such extension is to be charged to Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: 21 FEB 08

By: Thomas E. McKiernan

Thomas E. McKiernan
Registration No. 37,889

1201 New York Avenue, NW, 7th Floor
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501

VIII. CLAIMS APPENDIX

1. (previously presented) A real-time contents editing method for editing a large number of images, including live images or voices which are present in a dispersed fashion on the Internet, and distributing the edited images or voices to a plurality of users, the method comprising:

providing a plurality of video cameras each serving as an input device, a plurality of distribution modules each adapted to code an input image taken by a corresponding video camera, by use of a coding standard which enables coding while selecting one of a plurality of coding algorithms and to distribute the coded input image, a plurality of receiving modules each adapted to receive and display the image or voice distributed from the distribution modules, and at least one editing module that requests the distribution modules to distribute the image or voice to the receiving modules;

determining the performance level of a machine to be used through measurement, in the system, of a time required for coding of a video object plane (VOP); and

causing each distribution module to change, in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used, to thereby select a coding algorithm which enables highly efficient compression.

2. (original) A real-time contents editing method according to claim 1, wherein processes for coding the input image are divided into basic processes and auxiliary processes; a coding execution time of each of the basic and auxiliary processes is measured; and the kind and use frequency of a video object plane (VOP) to be used is changed on the basis of results of the measurement.

3. (previously presented) A real-time contents editing system for editing a large number of images, including live images or voices which are present in a dispersed fashion on the Internet, and distributing the edited images or voices to a plurality of users, the system comprising:

a plurality of video cameras each serving as an input device;

a plurality of distribution modules each adapted to code an input image taken by a corresponding video camera, by use of a coding standard which enables coding while selecting one of a plurality of coding algorithms and to distribute the coded input image;

a plurality of receiving modules each adapted to receive and display the image or voice

distributed from the distribution modules; and

at least one editing module that requests the distribution modules to distribute the image or voice to the receiving modules,

wherein the performance level of a machine to be used is determined through measurement, in the system, of a time required for coding of a video object plane (VOP), and

wherein each distribution module changes, in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used, to thereby select a coding algorithm which enables highly efficient compression.

6. (original) A real-time contents editing system according to claim 3, wherein the coding standard is the MPEG-4 standard.

7. (original) A real-time contents editing system according to claim 3, wherein the editing module is adapted to request a distribution server to multicast the images and/or voices, and is adapted to generate and multicast a scene description language to be transmitted to a plurality of clients.

8. (original) A real-time contents editing system according to claim 3, wherein the coding process according to the selected coding algorithm is carried out in a step-by-step manner such that required minimum coding is completed after lapse of a predetermined time, whereupon an auxiliary coding process of enhanced resolution and compression rate is carried out; and if a relevant auxiliary coding process is not completed when a limited period of time has elapsed, the auxiliary coding process is interrupted, and the result of the coding process in an immediately preceding step is distributed.

9. (previously presented) A computer-readable medium storing a real-time contents editing program for editing a large number of images, including live images or voices which are present in a dispersed fashion on the Internet, and distributing the edited images or voices to a plurality of users, the program being adapted to a system comprising a plurality of video cameras each serving as an input device, a plurality of distribution modules each adapted to code an input image taken by a corresponding video camera by use of a coding standard which enables coding while selecting one of a plurality of coding algorithms and to distribute the coded input image, a plurality of receiving modules each adapted to receive and display the image or voice distributed from the distribution modules, and at least one editing module that requests the

distribution modules to distribute the image or voice to the receiving modules, the program causing a computer to execute a method comprising:

determining the performance level of a machine to be used through measurement, in the system, of a time required for coding of a video object plane (VOP); and

causing each distribution module to change, in accordance with the performance level, a kind and use frequency of a video object plane (VOP) to be used, to thereby select a coding algorithm which enables highly efficient compression.

10. (previously presented) An apparatus, comprising:

a plurality of video units as input devices, the video units collecting data containing at least one of voice or image data;

a plurality of distribution units, each distribution unit being adapted to code input data captured by a respective video unit, the coding units using one of a plurality of coding algorithms to code the data;

a plurality of receiving units, each receiving unit adapted to operably present the coded data received from a respective distribution unit; and

an editing unit that requests the distribution units to distribute coded data to the respective receiving unit, the editing unit determining the performance level of a distribution unit by measuring the time required for coding of a video object plane and, in response thereto, causing the distribution unit to select a coding algorithm in accordance with the performance level, thereby facilitating efficient data compression.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.